Driver Distraction: Eye Glance Analysis and Conversation Workload and Other Distraction Studies

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Contents

Driver Distraction: Eye Glance Analysis and Conversation Workload

- Study Objective
- Research Questions
- Methodology and Project Status

Study Objective

- Assess the risk of conversation workload while driving a commercial motor vehicle (CMV).
  - Conversation workload is a proxy for cognitive distraction or the amount of mental workload associated with thinking about something other than the driving task.
- Assess the risk of performing a secondary task while driving a CMV.

Research Questions

- What is the risk of conversation workload while driving a CMV as related to involvement in voice-related SCEs?
- What is the risk of secondary tasks (talk to passenger(s), talk/listen on an electronic device) while driving a CMV as related to involvement in voice-related SCEs?

Research Questions

- What is the risk of the timing of visual distraction while driving a CMV as related to involvement in voice-related SCEs?
- What is the risk of the length of time talking while driving a CMV as related to involvement in voice-related SCEs?

Methodology and Project Status

- Data from an existing naturalistic database from a vendor of onboard monitoring systems

- Data analysts recorded information about each driver's behavior (including secondary tasks, talking time, conversation workload, and visual behavior).

Methodology and Project Status

- Analysts rated emotions exhibited by drivers
  - Happy, Angry/Frustrated, Sad, Opinionated, Surprise, Concerned, Apologetic, Guilt, No Emotion Shown, Unsure
- Analysts rated intensity of emotion exhibited by drivers
  - Emotion Somewhat Shown, Emotion Very Much Shown, Emotion Extremely Shown, No Emotion Shown, Unsure

Methodology and Project Status

- Conversation workload derived from emotion and intensity of emotion ratings
- Odds ratios (ORs) used to assess the risk posed from drivers engaged in non-driving tasks while driving.
- Report currently undergoing agency review prior to publication

Other Distraction Studies

- Driver Distraction in Commercial Vehicle Operations, Olson et. al. (2009)
  - 4,452 safety-critical events
  - 203 truck drivers
- Distraction in Commercial Trucks and Buses: Assessing Prevalence and Risk in Conjunction with Crashes and Near-Crashes, Hickman et al. (2010)
  - 40,121 crashes, near-crashes, and events
  - 13,305 trucks and buses

Other Distraction Studies

- From Olson et. al. (2009)
  - Odds of involvement in a safety-critical event are 23.2 times greater when the driver is ***texting*** while driving than when the driver is not
  - Odds of involvement in a safety-critical event are 3.1 times greater when the driver is ***reaching for an object*** while driving than when the driver is not
  - Talking on cell phone did not increase risk

Other Distraction Studies

- From Hickman et. al. (2010)
  - Odds of involvement in a safety-critical event are 3.7 times greater when the driver is ***reaching for cell phone*** while driving than when the driver is not
  - Odds of involvement in a safety-critical event are 3.5 times greater when the driver is ***dialing cell phone*** driving than when the driver is not
  - Talking on cell phone did not increase risk

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